R

Name _____ Date _____

Reteaching: For use after Lesson 6.3, Algebra 2 with Trigonometry

## Multiplication of Polynomials

■ **Concept:** Multiplying polynomials

**Remember:** To multiply two polynomials, multiply each term of one of the polynomials by each term of the other and then combine like terms.

**Example:** Multiply: $(5x - 2)(x^2 - 3x + 5)$

$(5x - 2)(x^2 - 3x + 5)$

$5x(x^2 - 3x + 5) - 2(x^2 - 3x + 5)$ Multiply each term of the trinomial by $5x$ and by $-2$.

$5x^3 - 15x^2 + 25x - 2x^2 + 6x - 10$

$5x^3 - 17x^2 + 31x - 10$ Combine like terms.

Multiply.

**1.** $3(a + b)$ _____

**2.** $ab(a^2 + ab + b^2)$ _____

**3.** $(2x + 3)(3x + 4)$ _____

**4.** $(2x - 9)(3x + 1)$ _____

**5.** $(3x + 5)(2x + 3)$ _____

**6.** $(4x - 3)(3x - 4)$ _____

■ **Concept:** Recognizing special products

**Remember:** Some special products have particular patterns:

$(a + b)^2 = a^2 + 2ab + b^2$ Squares of binomials

$(a - b)^2 = a^2 - 2ab + b^2$

$(a + b)(a - b) = a^2 - b^2$ Product of a sum and difference of two terms

**Example:** Find each product. **a.** $(3x + 4)^2$ **b.** $(5x - 2)(5x + 2)$

**a.** $(3x + 4)^2 = (3x)^2 + 2(3x4) + 4^2$ Use the pattern: $(a + b)^2 = a^2 + 2ab + b^2$

$= 9x^2 + 24x + 16$ Simplify each term.

**b.** $(5x - 2)(5x + 2) = (5x)^2 - (2)^2$ Use the pattern: $(a + b)(a - b) = a^2 - b^2$

$= 25x^2 - 4$ Simplify each term.

Find each product.

**7.** $(2x - 1)^2$ _____ **8.** $(4x + 3)^2$ _____

**9.** $(2x - 9)(2x + 9)$ _____